CLAIMS

1. A method of analyzing an input signal into a plurality of frequency components comprising:

processing the signal with a first set of low pass filters to derive a first set of frequency components wherein the first set of low pass filters are arranged serially in a chain having a first low pass filter and a last low pass filter, the output of each low pass filter being fed to the next low pass filter in the chain until the last low pass filter;

downsampling the output of the last low pass filter to produce a downsampled signal;

processing the downsampled signal with a second set of low pass filters to derive a second set of frequency components.

2. A method of analyzing an input signal into a plurality of frequency components as recited in claim 1 wherein the frequency components are derived by subtracting the output of each low pass filter from the input to the low pass filter.

3. A method of analyzing an input signal into a plurality of frequency components as recited in claim 1 wherein the second set of low pass filters have a different Q than the first set of low pass filters.

4. A method of analyzing an input signal into a plurality of frequency components as recited in claim 1 wherein the second set of low pass filters have a Q that is less sharp than the first set of low pass filters.

5. A method of analyzing an input signal into a plurality of frequency components as recited in claim 1 wherein the second set of low pass filters have a Q that differs from the Q of the first set of low pass filters substantially according to human critical bandwidth.

6. A method of analyzing an input signal into a plurality of frequency components comprising:

processing the signal with a first low pass filter to produce a first low pass filtered signal;

subtracting the first low pass filtered signal from the input signal to derive a first frequency component;

processing the signal with a second low pass filter to produce a second low pass filtered signal; and

subtracting the second low pass filtered signal from the first low pass filtered signal to derive a second frequency component.

7. A method of analyzing an input signal into a plurality of frequency components comprising:

processing the signal with a first low pass filter to produce a first low pass filtered signal;

subtracting the first low pass filtered signal from the input signal to derive a first frequency component;

processing the low pass filtered signal with a second low pass filter to produce a second low pass filtered signal; and

subtracting the second low pass filtered signal from the first low pass filtered signal to derive a second frequency component.

8. A method of analyzing an input signal into a plurality of frequency components comprising:

processing the signal with a first filter wherein the first filter is configured to separate part of the signal into a first output frequency channel; and

processing the signal with a second filter wherein the second filter is configured to separate part of the signal into a second output frequency channel wherein the first frequency channel emphasizes higher frequencies than the second frequency channel; and wherein the second filter has a different Q than the first filter.

9. A method of analyzing an input signal into a plurality of frequency components as recited in claim 8 wherein the second filter has a Q that is less sharp than the first filter.

10. A method of analyzing an input signal into a plurality of frequency components as recited in claim 8 wherein the second filter has a Q that differs from the Q of the first filter substantially according to human critical bandwidth.

11. A method of analyzing an input signal into a plurality of frequency components as recited in claim 8 wherein the filters are low pass filters.

12. A system for analyzing an input signal into a plurality of frequency components comprising:

a first set of low pass filters configured to derive a first set of frequency components wherein the first set of low pass filters are arranged serially in a chain having a first low pass filter and a last low pass filter, the output of each low pass filter being fed to the next low pass filter in the chain until the last low pass filter;

a downsampler configured to downsample the output of the last low pass filter to produce a downsampled signal;

a second set of low pass filters configured to process the downsampled signal to derive a second set of frequency components.

13. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the frequency components are derived by subtracting the output of each low pass filter from the input to the low pass filter.

14. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the second set of low pass filters have a different Q than the first set of low pass filters.

15. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the second set of low pass filters have a Q that is less sharp than the first set of low pass filters.

16. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the second set of low pass filters have a Q that differs from the Q of the first set of low pass filters substantially according to critical band.

17. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the system is used in a voice recognition system.

18. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the system is used for audio stream separation

19. A system for analyzing an input signal into a plurality of frequency components as recited in claim 12 wherein the system is used for sound localization.

20. A system for analyzing an input signal into a plurality of frequency components comprising:

a first low pass filter that outputs a first low pass filtered signal;

a first processor configured to subtract the first low pass filtered signal from the input signal to derive a first frequency component;

a second low pass filter that outputs a second low pass filtered signal; and

a second processor configured to subtract the second low pass filtered signal from the first low pass filtered signal to derive a second frequency component.

21. A system for analyzing an input signal into a plurality of frequency components comprising:

a first low pass filter that outputs a first low pass filtered signal;

a first processor configured to subtract the first low pass filtered signal from the input signal to derive a first frequency component;

a second low pass filter configured to process the low pass filtered signal to produce a second low pass filtered signal; and

a second processor configured to subtract the second low pass filtered signal from the first low pass filtered signal to derive a second frequency component.

22. A system for analyzing an input signal into a plurality of frequency components comprising:

a first filter configured to process the signal wherein the first filter is configured to separate part of the signal into a first output frequency channel; and

a second filter configured to process the signal wherein the second filter is configured to separate part of the signal into a second output frequency channel wherein the first frequency channel emphasizes higher frequencies than the second frequency channel; and wherein the second filter has a different Q than the first filter.

23. A system for analyzing an input signal into a plurality of frequency components as recited in claim 22 wherein the second filter has a Q that is less sharp than the first filter.

24. A system for analyzing an input signal into a plurality of frequency components as recited in claim 22 wherein the second filter has a Q that differs from the Q of the first filter substantially according to a critical band.

25. A system for analyzing an input signal into a plurality of frequency components as recited in claim 22 wherein the filters are low pass filters.